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**CLAIMS**

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[Claim(s)]

[Claim 1]

In the airline printer equipped with the image reading section which reads a former image in the manuscript laid in the installation side, and generates image data, the image-processing section which processes this image data and generates print data, and the printing section which prints a printing image to print media based on these print data,

Said image data is an airline printer characterized by being data generated based on the former image on the field appointed according to the class of said manuscript in said installation side.

[Claim 2]

In an airline printer according to claim 1,

Said image data is an airline printer characterized by being data generated only based on the former image on said field.

[Claim 3]

In an airline printer given in either claim 1 or claim 2,

Said image data is RGB data which changed the light which irradiated said manuscript, and was reflected or penetrated,

Said print data are airline printers characterized by being CMYK data which changed said RGB data.

[Claim 4]

In an airline printer according to claim 1 to 3,

It has the input means of the class information on said manuscript, and said field is appointed for said every class information,

The airline printer characterized by determining said field based on the class information inputted by said input means.

[Claim 5]

In an airline printer according to claim 1 to 4,

In an installation side, the multi-statement of said field is carried out to the same class information,

Said image-processing section is an airline printer characterized by generating print data for every former image on this set-up field.

[Claim 6]

In an airline printer according to claim 5,

Said field is an airline printer characterized by agreeing for the profile of said manuscript and carrying out formation setting out.

[Claim 7]

In an airline printer according to claim 5,

Said field is an airline printer characterized by carrying out two or more formation setting out of the thing smaller than the profile of said manuscript.

[Claim 8]

In an airline printer according to claim 7,

It is the airline printer which said manuscript has two or more real manuscript fields, and is

characterized by for said field agreeing and formation setting out being carried out at the profile of this real manuscript field.

[Claim 9]

In an airline printer according to claim 1 to 8,

Said printing section is an airline printer characterized by printing a printing image for the whole surface of print media for said every print data.

[Claim 10]

In an airline printer according to claim 1 to 9,

Said image-processing section is an airline printer characterized by trimming image data so that the appearance configuration of the printing image printed based on said image data may turn into print media and a parallelism configuration, while the aspect ratio of image data is fixed to the aspect ratio of a former image.

[Claim 11]

In an airline printer according to claim 10,

The appearance of said both printing images and said print media is a rectangle configuration, In the case of a longwise configuration, said printing image trims the part of the image data applicable to the part protruded from the dip which can print print media in the printing image which expanded and contracted and this expanded and contracted the printing image according to the breadth which can print [ of print media ] the breadth of this printing image rather than said print media,

The airline printer characterized by said printing image trimming the part of the image data applicable to the part protruded from the breadth which can print print media in the printing image which expanded and contracted and this expanded and contracted the printing image according to the dip which can print [ of print media ] the dip of this printing image rather than said print media in the case of the oblong configuration.

[Claim 12]

In an airline printer according to claim 1 to 9,

The appearance of both the printing image printed by print media based on said image data and said print media is a rectangle configuration,

Said image-processing section is an airline printer characterized by changing the aspect ratio of image data so that the ratio of the dip and breadth of said printing image may turn into a dip of said print media, and a ratio of breadth.

[Claim 13]

In an airline printer according to claim 1 to 11,

The airline printer characterized by printing a printing image to print media based on said print data so that it may continue all over said print media and the margin section may not be produced.

[Claim 14]

In an airline printer according to claim 1 to 11,

The airline printer characterized by printing a printing image to print media based on said print data so that the margin section may be formed along the periphery of said print media.

[Claim 15]

In an airline printer according to claim 1 to 14,

It is the airline printer which holds said manuscript, is equipped with a manuscript positioning means to position in the proper location to said field, and is characterized by stopping this manuscript positioning means through a stop means in an installation side.

[Claim 16]

In an airline printer according to claim 1 to 15,

The airline printer characterized by having the image display screen which displays an image based on said image data.

[Claim 17]

In the airline printer equipped with the image reading section which reads a former image in the manuscript laid in the installation side, and generates image data, the image-processing section which processes this image data and generates print data, and the printing section which prints a

printing image to print media based on these print data,

Said image data is RGB data which changed the light which irradiated said manuscript, and was reflected or penetrated, and it is RGB data generated only based on the former image on the field appointed according to the class of said manuscript in said installation side,

Said print data are CMYK data which changed said RGB data,

It has the input means of the class information on said manuscript, said field is appointed for said every class information, and said field is determined based on the class information inputted by said input means,

To the same class information, in an installation side, said field agrees for the profile of a manuscript and two or more formation setting out is carried out,

Said image-processing section generates print data for every former image on this set-up field,

The appearance of both the printing image printed based on said image data and said print media is a rectangle configuration,

While said image-processing section fixes the aspect ratio of image data to the aspect ratio of a former image, said printing image rather than said print media in the case of a longwise configuration A printing image is expanded and contracted according to the breadth which can print [ of print media ] the breadth of this printing image. The part of the image data applicable to the part protruded from the dip which can print print media in the this printing image which expanded and contracted is trimmed. Said printing image rather than said print media in the case of an oblong configuration The part of the image data applicable to the part protruded from the breadth which can print print media in the printing image which expanded and contracted and this expanded and contracted the printing image according to the dip which can print [ of print media ] the dip of this printing image is trimmed,

Said printing section is an airline printer characterized by printing so that a printing image may be continued all over print media for the whole surface of print media for said every print data and the margin section may not be produced.

[Claim 18]

In the control approach of the airline printer equipped with the image reading section which reads a former image in the manuscript laid in the installation side, and generates image data, the image-processing section which processes this image data and generates print data, and the printing section which prints a printing image to print media based on these print data,

The control approach of the airline printer characterized by generating said image data based on the former image on the field appointed according to the class of said manuscript in said installation side.

[Claim 19]

In the airline printer equipped with the image-processing section which processes the image data generated based on the former image of a manuscript, and generates print data, and the printing section which prints a printing image to print media based on these print data,

It is the airline printer characterized by processing said image data, said image-processing section maintaining the central field of said former image to actual size so that the outside field of said central field may be expanded, and generating print data.

[Claim 20]

In an airline printer according to claim 19,

The airline printer characterized by printing a printing image to print media based on said print data so that it may continue all over said print media and the margin section may not be produced.

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[Translation done.]

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DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention]

This invention relates to the control approach of an airline printer and an airline printer.

[0002]

[Background of the Invention]

The outline perspective view of the printer 10 (henceforth a scanner printer) of scanner one apparatus sold recently is shown in drawing 1 . This scanner printer 10 is equipped with the contact glass 20 which lays a manuscript, the scanner 30 which reads an image in the reflected light of the light which irradiated this manuscript, and generates image data, and the printer section 120 which prints to a print sheet based on this image data in one. And since an image is simply read in a manuscript and the image can be printed, without connecting with a personal computer, a person unfamiliar to especially a computer enjoys popularity.

[0003]

[Problem(s) to be Solved by the Invention]

However, on the occasion of reading of a manuscript, irrespective of the size of a manuscript, a scanner 30 continues all over 20 of a contact glass, performs reading actuation, and generates one image data corresponding to this whole surface. And the image-processing section performed image processings, such as color conversion, and has changed them into the print data which can be printed in the printer section 120 at this image data. For this reason, even when manuscript size was small compared with the contact glass 20, the image-processing section had to process the mass image data corresponding to the contact glass 20 whole surface, and image-processing time amount was long superfluously.

[0004]

This invention is made in view of this technical problem, and the place made into the object is to realize the control approach of the airline printer which can attain shortening of the image-processing time amount for processing the image data read in the image reading section, and generating print data, and an airline printer.

[0005]

[Means for Solving the Problem]

In order to solve said technical problem, main this invention The image reading section which reads a former image in the manuscript laid in the installation side, and generates image data, In the airline printer equipped with the image-processing section which processes this image data and generates print data, and the printing section which prints a printing image to print media based on these print data said image data It is the airline printer characterized by being data generated based on the former image on the field appointed according to the class of said manuscript in said installation side.

About other descriptions of this invention, it clarifies by the publication of this description and an accompanying drawing.

[0006]

[Embodiment of the Invention]

= Outline == of == disclosure

The following thing is clarified at least by the publication of this description and an accompanying drawing.

The image reading section which reads a former image in the manuscript laid in the installation side, and generates image data, In the airline printer equipped with the image-processing section which processes this image data and generates print data, and the printing section which prints a printing image to print media based on these print data said image data The airline printer characterized by being data generated based on the former image on the field appointed according to the class of said manuscript in said installation side.

According to such an airline printer, the image reading section generates image data based on the former image on said field appointed according to the class of manuscript, and the image-processing section generates the print data with which printing in the printing section is presented based on this image data. Therefore, the amount of data of image data can be held down to the minimal dose needed for every manuscript, the generation processing load of the print data which have and are made in the image-processing section based on image data can be mitigated, and shortening of image-processing time amount can be attained.

[0007]

Moreover, as for said image data, in this airline printer, it is desirable that it is data generated only based on the former image on said field.

According to such an airline printer, since it is generated only based on the former image on said field, said image data can hold down the amount of data of image data to the minimal dose further, and can mitigate further the generation processing load of the print data of the image-processing section.

[0008]

Moreover, it sets to this airline printer, said image data is RGB data which changed the light which irradiated said manuscript, and was reflected or penetrated, and, as for said print data, it is desirable that it is CMYK data which changed said RGB data.

According to such an airline printer, the transform-processing load from RGB data to the CMYK data made in the image-processing section is substantially mitigable.

[0009]

Moreover, in this airline printer, it is desirable to determine said field based on the class information which it had the input means of the class information on said manuscript, and said field was appointed for said every class information, and was inputted by said input means. According to such an airline printer, a user can set up said field easily so that its own manuscript may be suited. Moreover, since the image reading section recognizes said field using the class information from an input means, it does not have to carry out the press can for recognizing the existence region of a manuscript, and can carry out printing processing promptly.

[0010]

Moreover, in this airline printer, in an installation side, the multi-statement of said field is carried out to the same class information, and, as for said image-processing section, it is desirable to generate print data for every former image on this set-up field.

If reading actuation is performed once to the installation side on which two or more manuscripts of the same class were put according to such an airline printer, print data can be generated for every former image, and it excels in convenience.

[0011]

Moreover, as for said field, in this airline printer, it is desirable to agree for the profile of said manuscript and to carry out formation setting out.

According to such an airline printer, it becomes generable [ the print data which read all the range of a manuscript ].

[0012]

Moreover, as for said field, in this airline printer, it is desirable to carry out two or more formation setting out of the thing smaller than the profile of said manuscript.

According to such an airline printer, it becomes generable from a manuscript about print data for every former image by one reading actuation to the manuscript which has two or more former

images of the small range.

[0013]

Moreover, in this airline printer, said manuscript has two or more real manuscript fields, and, as for said field, it is desirable for the profile of this real manuscript field to agree and carry out formation setting out.

According to such an airline printer, it becomes generable [ the print data which read all the range of said real manuscript field ].

[0014]

Moreover, as for said printing section, in this airline printer, it is desirable to print a printing image for the whole surface of print media for said every print data.

Since print media is changed and printed for every print data according to such an airline printer, two or more printing images are not printed on one print media, and a user does not need to carve print media for every printing image after printing, and is excellent in convenience.

[0015]

Moreover, in this airline printer, while said image-processing section fixes the aspect ratio of image data to the aspect ratio of a former image, it is desirable to trim image data so that the appearance configuration of the printing image printed based on said image data may turn into print media and a parallelism configuration.

According to such an airline printer, since the aspect ratio of a former image is maintained, it becomes possible [ printing to print media, without making image data distorted ] from a former image. Moreover, the printing image of this print media and a parallelism appearance is printed by print media, and appearance of print media can be made good.

[0016]

In this airline printer, the appearance of said both printing images and said print media is a rectangle configuration. Said printing image rather than said print media moreover, in the case of a longwise configuration A printing image is expanded and contracted according to the breadth which can print [ of print media ] the breadth of this printing image. The part of the image data applicable to the part protruded from the dip which can print print media in the this printing image which expanded and contracted is trimmed. Said printing image rather than said print media in the case of an oblong configuration It is desirable to trim the part of the image data applicable to the part protruded from the breadth which can print print media in the printing image which expanded and contracted and this expanded and contracted the printing image according to the dip which can print [ of print media ] the dip of this printing image.

According to such an airline printer, trimming processing can be performed simple.

[0017]

Moreover, in this airline printer, the appearance of both the printing image printed by print media based on said image data and said print media is a rectangle configuration, and, as for said image-processing section, it is desirable to change the aspect ratio of image data so that the ratio of the dip and breadth of said printing image may turn into a dip of said print media and a ratio of breadth.

According to such an airline printer, printing becomes possible about the printing image of print media and a parallelism appearance simple at print media, without performing trimming processing.

[0018]

Moreover, in this airline printer, it is desirable to print a printing image to print media based on said print data so that it may continue all over said print media and the margin section may not be produced.

According to such an airline printer, edge-less printing can be performed to print media.

[0019]

Moreover, in this airline printer, it is desirable to print a printing image to print media based on said print data so that the margin section may be formed along the periphery of said print media.

According to such an airline printer, printing with marginal can be performed to print media.

[0020]

Moreover, in this airline printer, said manuscript is held, it has a manuscript positioning means to

position in the proper location to said field, and, as for this manuscript positioning means, it is desirable to be stopped through a stop means in an installation side.

Since a manuscript can be certainly put on the field to which image data is generated according to such an airline printer, printing becomes certainly possible about a desired former image at print media.

[0021]

Moreover, in this airline printer, it is desirable to have the image display screen which displays an image based on said image data.

According to such an airline printer, said printing image can be checked on an image display screen.

[0022]

Moreover, the image reading section which reads a former image in the manuscript laid in the installation side, and generates image data, In the airline printer equipped with the image-processing section which processes this image data and generates print data, and the printing section which prints a printing image to print media based on these print data said image data It is RGB data which changed the light which irradiated said manuscript, and was reflected or penetrated. It is RGB data generated only based on the former image on the field appointed according to the class of said manuscript in said installation side. Said print data Are CMYK data which changed said RGB data, and it has the input means of the class information on said manuscript. Said field is appointed for said every class information, and said field is determined based on the class information inputted by said input means. Said field To the same class information, in an installation side, it agrees for the profile of a manuscript and two or more formation setting out is carried out. Said image-processing section The appearance of both the printing image which generates print data for every former image on this set-up field, and is printed based on said image data, and said print media is a rectangle configuration. Said image-processing section While the aspect ratio of image data is fixed to the aspect ratio of a former image, said printing image rather than said print media in the case of a longwise configuration A printing image is expanded and contracted according to the breadth which can print [ of print media ] the breadth of this printing image. The part of the image data applicable to the part protruded from the dip which can print print media in the this printing image which expanded and contracted is trimmed. Said printing image rather than said print media in the case of an oblong configuration A printing image is expanded and contracted according to the dip which can print [ of print media ] the dip of this printing image. The part of the image data applicable to the part protruded from the breadth which can print print media in the this printing image which expanded and contracted is trimmed. Said printing section It is desirable to print so that a printing image may be continued all over print media for the whole surface of print media for said every print data and the margin section may not be produced.

According to such an airline printer, the object of this invention is attained most effectively.

[0023]

Moreover, the image reading section which reads a former image in the manuscript laid in the installation side, and generates image data, In the control approach of the airline printer equipped with the image-processing section which processes this image data and generates print data, and the printing section which prints a printing image to print media based on these print data The control approach of the airline printer characterized by generating said image data based on the former image on the field appointed according to the class of said manuscript in said installation side.

According to the control approach of such an airline printer, the amount of data of said image data can be held down to the minimal dose needed for every manuscript, the generation processing load of the print data which have and are made in the image-processing section based on image data can be mitigated, and shortening of image-processing time amount can be attained.

[0024]

Moreover, it is the airline printer characterized by to process said image data, said image-processing section maintaining the central field of said former image to actual size in the airline

printer equipped with the image-processing section which processes the image data generated based on the former image of a manuscript, and generates print data, and the printing section which prints a printing image to print media based on these print data so that the outside field of said central field may be expanded, and to generate print data.

According to such an airline printer, the outside field of this central field can print the printing image expanded from the former image to print media, making a central field into a former image and actual size.

[0025]

Moreover, in this airline printer, it is desirable to print a printing image to print media based on said print data so that it may continue all over said print media and the margin section may not be produced.

According to such an airline printer, edge-less printing can be performed to print media.

[0026]

= == whole equipment example of configuration ==

Next, the airline printer (henceforth scanner printer) whole configuration equipped with the scanner section as the image reading section is explained. As shown in drawing 1, the scanner printer 10 concerning the gestalt of this operation is equipped with the image-processing section (un-illustrating) which carries out transform processing of the image data generated in the scanner section 30 to the print data which can be printed in the printer section 120, while the upper part in a case is equipped with the scanner section 30 of the flatbed mold as the image reading section and it equips the lower part in a case with the printer section 120 of the color ink jet type as the printing section. Moreover, the front face of a case is equipped with the control-panel section 40 as input means, such as manuscript class information.

[0027]

Drawing 2 is the conceptual diagram showing the whole control-section 50 configuration of the scanner printer 10. This control section 50 is equipped with the generalization control section 52 which generalizes a series of actuation of the scanner printer 10, the scanner control section 60 which controls actuation of the scanner section 30, and the printer control section 140 which controls the printer section 120. In addition, while the generalization control section 52 is equipped with CPU54, RAM56, and ROM58, reads the various processing programs stored in ROM58 by CPU54, performs various processings and functions also as said image-processing section 52, it also controls said control-panel section 40.

[0028]

= Example of configuration == of == component

Each component of the scanner printer 10 is explained according to an individual here at a detail.

[0029]

--- Control-panel section ---

The control-panel section 40 which expands to drawing 3 and is shown mainly inputs the class of manuscript read in the scanner section 30, and the class of print sheet as print media printed in the printer section 120. This control-panel section 40 consists of the liquid crystal panels 42 and manual operation buttons 44 which display these input screens, and processing of this display etc. is controlled by the generalization control section 52. The manual operation button 44 is equipped with stop button 44d for stopping start button 44c for making decision carbon button 44b for deciding vertical carbon button 44a for moving the cursor in an input screen, and the content of an input, reading actuation of an image, etc. start, and said actuation.

[0030]

The manuscript class selection menu, the manuscript size selection menu, the manuscript gestalt selection menu, and the reading field selection menu are prepared for the input screen 42 of the class of manuscript. And the manuscript class information which consists of manuscript class data, manuscript size data, manuscript gestalt data, and reading field number data is inputted by choosing an applicable item as each menu suitably from the items by which it was indicated by the list.

[0031]



the manuscript class selection menu of drawing 3 (a) -- as a reflection copy -- a photograph -- moreover, as a transparency manuscript, a list indication of the item of a negative film, a positive film, etc. is given. and -- the case where a photograph is chosen with this menu -- the manuscript size selection menu of drawing 3 (b) -- the item of E seal, L seal, a postcard seal, 2L seal, a panorama seal, etc. -- moreover, a list indication of the items having no edge, with marginal, etc. is given at the manuscript gestalt selection menu of drawing 3 (c).

[0032]

On the other hand, when a negative film is chosen in said manuscript class selection menu of drawing 3 (a), a list indication of the item of 35mm strip, APS, etc. is given at the manuscript size selection menu of drawing 3 (b). However, said manuscript gestalt selection menu for inputting marginal existence is not displayed in this case.

[0033]

And if manuscript class information is inputted by the above-mentioned alter operation, as shown in the plan of drawing 4, the multi-statement of the reading fields 22a and 22b for the scanner section 30 to read a former image in a manuscript will be carried out to the 20th page of the contact glass as an installation side in which the manuscript in the scanner section 30 shown in drawing 1 is laid. For this reason, since it specifies whether the former image of a manuscript is made to read in which reading fields 22a and 22b, after said alter operation, on the control-panel section 40, the reading field selection menu shown in drawing 3 (d) is displayed, the reading field number matched for every reading field of this is inputted and read in it, and the location of a field is pinpointed.

[0034]

For example, when "he even has a photograph, E seal, and no edge" is input as said manuscript class information, as show in drawing 4, two reading fields 22a and 22b of the profile and the same size of E seal are prepare from the edge of a contact glass before an edge, and the number of No. 1 and No. 2 is assign by each [ these ] field from the left, respectively. And a user inputs whether the manuscript placed on the reading field of what No. is read in a reading field selection menu. Here, when the number input of both No. 1 and No. 2 is carried out, two manuscript class information of "a photograph, E seal, marginal nothing one, No. 1", and "a photograph, E seal, marginal nothing one and No. 2" is generated.

[0035]

In addition, in said manuscript gestalt selection menu of drawing 3 (c), when the item with marginal is chosen as instead of [ without an edge ], it reads, as shown in drawing 4, and as an alternate long and short dash line shows, Fields 24a and 24b are made to meet the seating rim of the edge of E seal photograph, and are formed.

[0036]

Moreover, although it is made to carry out the multi-statement of the reading fields 22a and 22b, you may make it set up only not only this but 22a which reads in the start and shows only one field to drawing 4 in the above-mentioned example of explanation. And in this case, it is unnecessary and said reading field selection menu is not displayed.

[0037]

On the other hand, when "a negative film and 35mm strip" are inputted as manuscript class information, as shown in drawing 5 (a), it is made to correspond to six real manuscript fields which a negative film has, and six reading field 26a and --26f are prepared from the edge of the contact glass 20 before an edge. although the condition of having laid the strip negative film 200 on the contact glass 20 at drawing 5 (b) is shown -- each [ these ] reading field 26 -- a and -- 26f -- said real manuscript field 200 of the strip negative film 200 -- it is agreed and formed by the profile (a and --200f), and the number of 1-6 is assigned to each field. And it inputs whether a user reads the real manuscript field on the reading field of what No. in the scanner section 30 from said reading field selection menu, and reads like the above-mentioned, and manuscript class information is generated only for the number of inputs of the number of a field.

[0038]

In addition, although he is trying to read only in the reading field which carried out the number input, you may make it read not only without this but without a number input for all reading field

26a and —26f in the example of explanation of the above-mentioned negative film.

[0039]

The print sheet class selection menu, the print sheet size selection menu, and the printing gestalt selection menu are prepared for the input screen of the class of print sheet shown in drawing 6, and the print sheet class information which consists of print sheet class data, print sheet size data, and printing gestalt data is inputted into it by choosing an applicable item as each menu suitably from the items by which it was indicated by the list.

[0040]

A list indication of the item of a photograph card, a photograph quality card, a photograph print, an exclusive gloss film, etc. is given at the print sheet class selection menu shown in drawing 6 (a). And when for example, a photograph print is chosen with this menu, a list indication of the item of E seal, L seal, a postcard seal, 2L seal, a panorama seal, etc. is given, and a list indication of the items having no edge, with marginal, etc. is given at the printing gestalt selection menu of drawing 6 (c) at the print sheet size selection menu of drawing 6 (b).

[0041]

If a user inputs all of these manuscript class information or print sheet class information and pushes said start button 44c, these two information will be transmitted to the generalization control section 52. And the generalization control section 52 transmits a manuscript reading command to the scanner control section 60. In addition, said manuscript class information and print sheet class information attach to this manuscript reading command.

[0042]

— Scanner section —

Drawing 7 is the schematic diagram showing an example of the main configurations of the scanner section 30, and shows a plan to drawing 7 (b) for a side elevation again at drawing 7 (a), respectively.

This scanner section 30 is equipped with the carriage 32 for carrying out both-way migration in the parallel direction of vertical scanning to said level contact glass 20 and the contact glass 20 as an installation side in which a manuscript is laid, and reading a former image in said manuscript, the carriage motor (un-illustrating) for driving this carriage 32 through a driving belt, and the guide rail 33 for guiding migration in the direction of vertical scanning of carriage 32.

[0043]

The contact glass 20 consists of flat transparence rectangle plates, such as a glass plate, arranges the longitudinal direction in the direction of vertical scanning, and is arranged. Although A4 size (210x297mm) like the example of a graphic display as a flat-surface dimension of this contact glass 20 is common, it does not restrict to this. The X coordinate is set up in the direction of vertical scanning by the 20th page of this contact glass in the main scanning direction where this and a Y coordinate cross at right angles again, and these origin of coordinates are set to it in the corner of the contact glass 20. Moreover, around this contact glass 20, the graduation corresponding to each axis of coordinates is filled in, and this graduation serves as a rule of thumb which carries out the visual grasp of said reading field in it.

[0044]

the contact glass 20 allots carriage 32 caudad — having — \*\*\*\* — from an edge by the edge of the contact glass 20 — continuing — the direction of vertical scanning — a round trip — it is movable. This carriage 20 is driven by carriage motors, such as a stepping motor. The driving signal of this carriage motor is matched with said Y coordinate, and carriage 32 can recognize the own direction location of Y by counting said driving signal.

[0045]

Mirror 38a for transmitting the reflected light reflected in the main scanning direction as the light source which irradiates light by the manuscript from the fluorescent lamp 34 arranged on parallel and the manuscript to the after-mentioned linear sensor 36 and lens 38b, and the linear sensor 36 that reads this transmitted strength of the reflected light are carried in this carriage 32.

[0046]

The linear sensor 36 arranges CCD (Charge Coupled Device) of the number equivalent to the resolution of a main scanning direction in a main scanning direction in the shape of a straight-

line train, and reads the part of the former image of the manuscript equivalent to a part for this single tier at once. And this linear sensor 36 picks 2-dimensional reading in the former image of the manuscript which repeated and had said reading actuation for every movement magnitude predetermined [ used as the resolution of the direction of vertical scanning ], and was laid in the contact glass 20, moving in the direction of vertical scanning with said carriage 32.

[0047]

CCD will output the electrical signal of the magnitude are a photodiode, for example, receive the reflected light from a manuscript, and corresponding to the strength of this reflected light that received light which generates a charge, if light hits. This electrical signal is changed into a digital signal with an A/D converter (un-illustrating) after predetermined magnification. In addition, this digital signal consists of digital signals for a single tier of said CCD for the number. And the digital signal for this single tier is transmitted to the after-mentioned masking circuit (un-illustrating) of the scanner control section 60, after shoe DINGU amendment is carried out in the shoe DINGU amendment section (un-illustrating). In addition, shoe DINGU amendments are amendment of the sensibility variation for every CCD, and amendment of lighting unevenness. In addition, the Y coordinate value of the part of the former image of the manuscript corresponding to this digital signal converts and attaches to the digital signal for this single tier from said driving signal.

[0048]

Matching with said X coordinate is made, and each CCD can extract only the digital signal applicable to the X coordinate out of the digital signal for said single tier, if an X coordinate is therefore specified.

That the color should be separated into the three primary colors (red (R), green (G) and blue (B)) of light, and reading of the reflected light from a manuscript should be made possible, the element array of such CCD is arranged on each the single tier every to each color of RGB, and it can have it, and it can generate the image data of RGB.

[0049]

As shown in drawing 2 , the scanner control section 60 is equipped with the system controller 62 which controls actuation of the whole scanner section. To this system controller 62 The vertical-scanning actuation circuit 64 which drives the carriage motor 31, and the home position detection sensor for detecting the home position (said Y coordinate zero) of the carriage 32 in the direction of vertical scanning (un-illustrating), Said masking circuit 68 which reads out of the light source control circuit 66 which controls burning putting out lights of the light source, and the digital signal for the single tier read and generated by the linear sensor 36, and extracts only the signal corresponding to a field is connected. And based on the manuscript reading command and manuscript class information which are transmitted from the control control section 52, this system controller 62 sends a control signal to the vertical-scanning actuation circuit 64, the light source control circuit 66, and the masking circuit 68.

[0050]

It consists of ASIC (Application Specific Integrated Circuit) etc., and the masking circuit 68 has recorded beforehand XY coordinate table 68a which reads for said every manuscript class information, and shows XY coordinate of a field as shown in drawing 8 . When this XY coordinate table 68a is arranged on Y coordinate criteria, that is, the value of a Y coordinate is specified, the range of an X coordinate is pinpointed as a reading field corresponding to that Y coordinate value.

[0051]

If the digital signal for said single tier is inputted into this masking circuit 68 with the Y coordinate value and manuscript class information accompanying this digital signal, the masking circuit 68 will read the range of the X coordinate corresponding to a reading field in said XY coordinate table 68a by using this manuscript class information and a Y coordinate value as a key. And only the digital signal applicable to the range of this X coordinate is extracted out of the digital signal for said single tier. For example, if the digital signal for the single tier read and generated by Y coordinate Y1 is inputted into the masking circuit 68 when manuscript class information is "a photograph, No. E, marginal nothing one, and No. 1", only the digital signal of a

part with which the X coordinate corresponds from X1 by X2 will be extracted.

[0052]

And this extracted digital signal will transmit all these digital signals to the image-processing section as image data of RGB, if it is stored in RAM with which self is equipped one by one and the digital signal covering the range of the Y coordinate corresponding to this manuscript class information gathers.

[0053]

--- Reading field in a contact glass ---

Here explains the reading field in the contact glass 20 to a detail.

The scanner section 30 of this invention is based only from the former image of the manuscript on the reading field of the 20th page of a contact glass, and generates the image data of RGB.

And to the image-processing section 52 which carries out a postscript, that image-processing load is mitigated by transmitting only this necessary minimum image data.

[0054]

About the direction of the direction slack vertical scanning of Y, it is made by migration actuation of carriage 32, and the processing which pinpoints this reading field, is based only from the former image of the manuscript which exists in that field, and generates image data is made by said masking circuit 68 about the direction slack main scanning direction of X.

[0055]

The system controller 62 of the scanner control section 60 has recorded beforehand on the detail Y coordinate range table 62a which reads for every manuscript class information and shows the range of the Y coordinate of a field as shown in drawing 9. And with reference to this Y coordinate range table 62a, the range of the Y coordinate of this reading field is acquired by using as a key manuscript class information transmitted from the control control section 52. For example, when "a photograph, E seal, marginal nothing one, and No. 1" are transmitted as manuscript class information, a system controller 62 acquires "Y1-Y2" as range of the Y coordinate for reading.

[0056]

And the vertical-scanning actuation circuit 64 is ordered a system controller 62 so that the range of this Y coordinate may be covered and reading actuation may be carried out. Then, continuing and moving carriage 32 to the range slack Y1-Y2 of this Y coordinate, it makes the linear sensor 36 read a former image, and the vertical-scanning actuation circuit 64 makes it generate the digital signal for a single tier for said every movement magnitude corresponding to resolution in the meantime. The digital signal for this single tier attaches said Y coordinate value and manuscript class information on this digital signal, and these are inputted into the masking circuit 68 at said every generation.

[0057]

As mentioned above, by using said Y coordinate value and manuscript class information as a key, with reference to XY coordinate table 68a of drawing 8, the masking circuit 68 reads the range of the X coordinate corresponding to this, extracts only the digital signal of the range of this X coordinate out of the digital signal for said single tier, and records it on said RAM. The masking circuit 68 is performed to the digital signal for one train each which generated this in the range of said Y coordinate, and generates the image data of RGB of the reading field corresponding to said manuscript class information in RAM as the result. And the image data of this RGB is transmitted to the image-processing section which is also the generalization control section 52 after this generation.

[0058]

--- Image-processing section ---

The image-processing section 52 performs a predetermined image processing, changes into the print data of CMYK ((Cyanogen C) (magenta M) Hierro (Y), black (K)) the image data of RGB transmitted from the scanner section 30, and transmits to the printer section 120.

As mentioned above, the generalization control section 52 serves as the image-processing section. And when CPU54 of the generalization control section 52 shown in drawing 2 reads suitably the various programs for image processings stored in ROM58 and performs these, the

image processing of said image data is performed.

A trimming processing program, the resolution transform-processing program, the color transform-processing program, the half toning program, and the raster processing program are stored in ROM58. And image data is processed one by one in this sequence, and it changes into print data.

Trimming processing makes a necessity judgment of the trimming of image data based on the manuscript class information and print sheet class information that image data attaches, and when required, it is processing which trims image data.

[0059]

The reason which needs this trimming processing is that a printing image will be distorted and will be printed from a former image if it prints all over a print sheet using all the data of the image data read in the reading field when the ratio of the dip and breadth of a reading field differs from the dip of a print sheet, and the ratio of breadth greatly. For example, if it prints using all the image data read and generated in the reading field 28 for panorama seals when reading a former image in the photograph of a panorama seal and printing to the print sheet of a postcard seal, as shown in drawing 10 It is because it becomes impossible to store in the print sheet 29 of a postcard seal, and a printing image will be able to distort more nearly longwise than a former image and will be printed like a graphic display as a result, if image data is compressed into a longitudinal direction and made longwise.

[0060]

Fixing the aspect ratio of image data to the aspect ratio of a former image, the outline procedure of this trimming processing computes the appearance configuration of the printing image (henceforth a schedule printing image) of the schedule printed using all the data of this image data, and it trims the upper and lower sides of image data, or a part on either side so that this appearance configuration may turn into a print sheet and a parallelism configuration. In addition, the aspect ratio of image data is fixed to the aspect ratio of a former image for preventing distortion of the image data from a former image.

Below, trimming procedure is explained to an example for the case where both the appearances of a reading field and a print sheet are rectangle configurations at a detail.

[0061]

First, based on the manuscript class information that this image data attaches, based on the print sheet class information which reads and similarly attaches the ratios  $Hr1/Hr2$  of the dip  $Hr1$  and breadth  $Hr2$  of a field again that this image data was generated, the ratios  $Hp1/Hp2$  of the dip  $Hp1$  and breadth  $Hp2$  of a print sheet are computed, and it judges whether the difference of these ratios is larger than a predetermined threshold. And since extent to which a printing image is distorted from a former image is small even if it prints using all the data of this read image data when the difference of these ratios is smaller than a threshold, it is made for the ratio of the dip and breadth of a printing image to turn into a dip of said print sheet, and a ratio of breadth by changing the aspect ratio of the image data itself, without performing trimming processing (below, this is called aspect ratio modification processing). For example, it reads, as shown in drawing 11 , and since the difference  $(Hr1/Hr2 - Hp1/Hp2)$  of said ratio is smaller than a threshold when a field 24 is E seal and a print sheet 25 is L seal, aspect ratio modification processing is performed.

[0062]

On the other hand, as shown in drawing 10 , it reads, and since  $Hr1/Hr2 - Hp1/Hp2$  are larger than a threshold when a field 28 is [ a print sheet 29 ] a postcard seal with a panorama seal, the following procedures perform trimming processing.

[0063]

First, said schedule printing image printed when all the data of this image data are used as they were is computed. Incidentally, since the aspect ratio of image data is fixed to the aspect ratio of a former image, the appearance configuration of this schedule printing image is the same as the appearance configuration of said reading field.

[0064]

And a schedule printing image is expanded and contracted at a rate of expanding and contracting

whose dip which can print [ of a print sheet ] the dip of a schedule printing image this schedule printing image suits rather than a print sheet, fixing the aspect ratio of image data in the case of an oblong configuration, and the part of the image data applicable to the part protruded into right and left from the breadth which can print a print sheet in this schedule printing image that it expanded and contracted is trimmed.

[0065]

Moreover, fixing the aspect ratio of image data rather than a print sheet in the case of a longwise configuration, it expands and contracts a schedule printing image at a rate of expanding and contracting which suits the breadth which can print [ of a print sheet ] the breadth of a schedule printing image, and this schedule printing image trims the part of the image data applicable to the part protruded from the dip which can print a print sheet up and down in this schedule printing image that it expanded and contracted. Here, the dips and breadth in which this printing is possible are the dip of the print sheet itself, and breadth, when performing edge-less printing to a print sheet, and when performing printing with marginal to a print sheet, they are the dip of a marginal seating rim, and breadth. Selection of the dip and breadth in which this printing is possible is made based on the printing gestalt data of said print sheet class information. In addition, it is made to carry out manual selection in the control-panel section any shall be performed between this trimming processing or said aspect ratio modification processing.

[0066]

Resolution transform processing is processing which changes the resolution of the image data which performed trimming processing etc. into print resolution for the printer section to print, and the processing changes a little with existence of said trimming processing.

[0067]

When said trimming processing is performed, the resolution (henceforth real resolution) of the image data on said schedule printing image which it expanded and contracted is computed by doing the division of the resolution of image data first at said rate of expanding and contracting in the case of trimming processing. When the real resolution of this image data is lower than print resolution, new data are generated between the data which perform linear interpolation and adjoin. Conversely, in being higher than print resolution, it changes the resolution of image data into print resolution by thinning out data at a fixed rate.

[0068]

On the other hand, when said trimming processing is not performed, the rate of expanding and contracting from the image at the time of manuscript reading to a print sheet is calculated by reading the size of the field which can print a print sheet and doing a division in the size of a field. Here, the size of the field which can be printed is the size of the print sheet itself, when performing edge-less printing to a print sheet, and when performing printing with marginal to a print sheet, it is the size of the marginal field in a seating rim.

[0069]

And the real resolution as resolution of image data at the time of being printed by the print sheet is computed by doing the division of the resolution of image data at this rate of expanding and contracting. When the real resolution of this image data is lower than print resolution, linear interpolation is performed and new data are generated between contiguous data. Conversely, in being higher than print resolution, it changes the resolution of image data into print resolution by thinning out data at a fixed rate.

In addition, the image data by which resolution conversion was carried out in this way is image data which still consists of a color component of RGB.

[0070]

Color transform processing is processing from which the printer section 120 which is a color ink jet printer changes the image data of RGB into the multi-tone data of CMYK as two or more available ink colors for every pixel, referring to the color conversion look-up table LUT. This multi-tone data by which color conversion was carried out has the gradation value of for example, 256 gradation.

[0071]

Half toning is processing which changes the image data of said 256 gradation into the halftone

image data expressed with 2 gradation ("a dot is not formed") which can express a printer using the so-called error diffusion method, the so-called systematic dither method, etc. [ "a dot is formed" and ]

[0072]

Raster processing rearranges said halftone image data in order of the data which should be transmitted to the printer section, it changes into final print data, and these print data contain the raster data in which the formation condition of the dot at the time of each horizontal scanning is shown, and the data in which a vertical-scanning feed per revolution is shown.

[0073]

And a up Norikazu ream is processed and the image-processing section slack control control section 52 transmits the printing command to which these print data were attached to the printer section 120 after changing the image data of RGB into the print data of CMYK.

[0074]

--- Printer section ---

Drawing 12 is the outline perspective view showing an example of the main configurations of the printer section 120. This printer section is the color ink jet printer 120 in which the output of a color picture is possible, and this color ink jet printer 120 forms a printing image by breathing out the color ink of cyanogen (C), magenta (M), and four colors of Y (Hierro) and K (black) on a print sheet P, and forming a dot.

[0075]

This printer section 120 is equipped with the form stacker 122 which stocks a print sheet P, the paper conveyance roller 124 driven with a non-illustrated stepping motor, a platen 126, carriage 128, the carriage motor 130, the towage belt 132 driven by the carriage motor 130, and the guide rail 134 for carriage 128. Moreover, cyanogen (C), magenta (M), and the print head 136 equipped with two or more nozzles which carry out the regurgitation of each ink of Y (Hierro) and K (black) are carried in carriage 128.

[0076]

The encoder 135 with which it is set as 1 inch for convenience, and the circumference of said paper conveyance roller 124 detects the location detection sensor which detects the specific location of the amount amendment of conveyances which turns into a criteria location of the paper conveyance roller 124 in the shaft edge of the paper conveyance roller 124, and which is not illustrated, and the revolution location (angle of rotation) from the criteria location is formed. This encoder 135 is constituted so that revolution location precision can be detected in the precision of 1 for an integer of the amount of minimum paper conveyances with the paper conveyance roller 124, based on the signal of an encoder 135, alignment has done [ the print sheet P ] enough, and the amount of conveyances of the paper conveyance roller 124 is amended.

[0077]

A print sheet P is rolled round with the paper conveyance roller 124 from the form stacker 122, and the front-face top of a platen 126 is sent in the direction of vertical scanning. Carriage 128 is led to the towage belt 132 driven by the carriage motor 130, and moves to a main scanning direction along with a guide rail 134.

[0078]

In addition, a main scanning direction points out the both directions of the round trip which carriage 128 moves along with a guide rail 134, on the other hand, the direction of vertical scanning points out only the uni directional to which a print sheet P is sent on the front face of a platen 126, and the main scanning direction is vertical to the direction of vertical scanning.

[0079]

Moreover, delivery actuation for making the feed actuation for supplying a print sheet P to the printer section 120 and a print sheet P discharge from the printer section 120 is also performed using the above-mentioned paper conveyance roller 124.

[0080]

An example of the printer control section 140 which controls the printer section 120 to drawing 2 is shown. This printer section 120 is equipped with the buffer memory 150 which receives the

signal supplied from the control control section 52, the image buffer 152 which stores print data, the system controller 154 which controls actuation of the printer section 120 whole, main memory 156, and EEPROM158. The horizontal-scanning actuation circuit 161 which drives the carriage motor 130, the vertical-scanning actuation circuit 162 which drives the paper conveyance motor 131, and the head actuation circuit 163 which drives the print head 136 are further connected to the system controller 154.

[0081]

The print data transmitted from the control control section 52 are once stored in buffer memory 150. Within the printer section 120, a system controller 154 reads required information in buffer memory 150 out of print data, and sends a control signal to the horizontal-scanning actuation circuit 161, the vertical-scanning actuation circuit 162, and the head actuation circuit 163 based on this.

[0082]

The print data of two or more color components received by buffer memory 150 are stored in the image buffer 152. The head actuation circuit 163 drives the nozzle array of each color in which the print data of each color component were prepared by the print head 136 according to read-out and this from the image buffer 152 according to the control signal from a system controller 54.

[0083]

== scanner whole printer of operation example ==

Next, the case where edge-less printing of the edge-less photograph of E seal as a manuscript is carried out at the photograph print of a panorama seal is explained to an example about actuation by this whole scanner printer 10.

First, a user lays the photograph of said E seal in reading field 22b for the edge-less photographs of E seal on the contact glass 20 shown in drawing 4 (a). In addition, in order to read a photograph this time [ two ] only in the reading field of No. 2 of the existing reading fields, a photograph is laid in reading field of No. 2 22b. Moreover, the photograph print of a panorama seal is set to the form stacker 122.

[0084]

Subsequently, a user pushes a start button, after inputting having without a photograph ->E seal -> edge the print sheet class information input screen which inputs as ->2 No. and is further shown in drawing 6 to no photograph print -> panorama seal -> edge from the manuscript class information input screen of the control-panel section 40 shown in drawing 3. Then, manuscript class information "a photograph, E seal, marginal nothing one, and No. 2" and print sheet class information "with a photograph print, a panorama seal, and no edge" are transmitted to the control control section 52 from the control-panel section 40. And the control control section 52 transmits a manuscript reading command to the scanner control section 60, and the scanner section 30 starts reading of the former image of the photograph on said reading field 22b.

[0085]

First, the system controller 62 of the scanner control section 60 acquires the range "Y3-Y4" of the Y coordinate as range of the reading field of the direction of Y which corresponds to this manuscript class information "a photograph, E seal, marginal nothing one, and No. 2" with reference to said Y coordinate range table 62a by using manuscript class information accompanying said manuscript reading command as a key. And to the vertical-scanning actuation circuit 64, it is ordered reading actuation of the image in the range of Y3-Y4, and carriage 32 moves from an origin-of-coordinates slack position in readiness to Y3. And just before amounting to Y3, the light source is turned on by the light source control circuit 66, and while carriage continues and moves from Y3 by Y4, for said every movement magnitude, the direction of X reads the former image of a photograph a single tier every, and the linear sensor 36 carries out A/D conversion, a shading compensation, etc., and generates the digital signal for a single tier. The digital signal for this single tier is outputted to the masking circuit 68 at every the generation of that.

[0086]

In the masking circuit 68, the manuscript class information and the Y coordinate value



accompanying this digital signal are read as a key, and the range of an applicable X coordinate "X1-X2" is acquired with reference to XY coordinate table 68a of a field. And only the digital signal applicable to the range of this X coordinate is extracted out of the digital signal for said single tier, and it stores in own RAM. Generation of this digital signal, an extract, and actuation of the are recording to RAM are repeated while continuing and moving to Y3-Y4. And if Y3-Y4 are covered and it finishes accumulating a digital signal into RAM, all these accumulated digital signals will be transmitted to the control control section 52 as image data of RGB generated only based on said reading field 22b. In addition, if 32 reaches carriage Y4, a return command will be transmitted to the vertical-scanning actuation circuit 64 from a system controller 62 in order to make it return to origin of coordinates immediately.

[0087]

On the other hand, the 52 tasks of control processing sections image-processing section which received the image data of RGB makes a necessity judgment of trimming processing from the manuscript class information and print sheet class information accompanying this image data. Since this time prints the photograph of E seal on the photograph print of a panorama seal, the difference of the ratio of such dips and breadth exceeds a threshold. Therefore, trimming processing is made and trimming of the upper and lower sides of image data is carried out in this case. Moreover, in the case of this trimming, since the printing gestalt data of print sheet class information are "with no edge", the dip and breadth in which said printing is possible are set as the dip and breadth of the photograph print itself of a print sheet slack panorama seal, it has them, and image data without an edge is generated.

[0088]

And the image-processing section 52 is performing resolution transform processing, color transform processing, half toning, and raster processing one by one, and transmits to the printer section by using the processed image data as print data.

In the printer section 120, the printer control section 140 sending carriage 128 to a main scanning direction, and sending a photograph print in the direction of vertical scanning based on these print data, it has by performing control which carries out the regurgitation of the predetermined ink from the print head 136, and a printing image is printed by the photograph print of a panorama seal.

[0089]

= = manuscript positioning means = = =

If it is in the gestalt of the above-mentioned implementation, unless it lays a manuscript in each reading field on the contact glass 20 at accuracy, the former image of a manuscript cannot be read to accuracy in the scanner section 30, consequently a printing image cannot be printed to a print sheet at accuracy. For example, when a manuscript is leaned and arranged to a reading field, or when the manuscript has curled and it has floated selectively from the 20th page of a contact glass, the printing image which inclined from the edge of a print sheet, and the printing image distorted selectively will be printed.

Then, it is desirable to use the manuscript positioning means for reading holding a manuscript firmly and positioning to a field.

[0090]

The manuscript positioning means for E seal photographs is shown in drawing 13 as this example. This manuscript positioning means 190 is the contact glass 20 and the bright film 192 of the same size, and it has composition which a manuscript reads and is positioned on a field by making a bright film 192 agree on the contact glass 20, and arranging it at the same time it is equipped with the plug pocket 194 which can hold manuscripts, such as a photograph, and inserts a manuscript in this plug pocket 194. In addition, the configuration of this and resemblance can also constitute the manuscript positioning means for strip negative films. And while being right set by common by curl deformation of a manuscript being inserted in the plug pocket 194 with such a configuration, on the contact glass 20, exact positioning to a reading field can be attained by making a bright film 192 agree, and it has it, and it can prevent the inclination of a printing image, and distortion.

[0091]

In addition, as long as it is the object which only positions to accuracy, it may be the contact glass 20 and the bright film 192 of the same size, and only the configuration equipped with the border line which bordered the reading field and was drawn may be used. And while making the profile of the contact glass 20 agree and laying this bright film 192, exact positioning can be performed, if said border line is made to meet and a manuscript is laid on a bright film 192.

[0092]

Moreover, if the stop member 196 of the shape of L character for stopping the corner of said bright film 192 is fixed to above at least two corners in the four-corners section of the contact glass 20 as shown in drawing 13, location gap of the bright film 192 from the contact glass 20 can be prevented certainly, and still more exact positioning will be attained.

[0093]

Although such a bright film 192 may be prepared for every manuscript class and manuscript size, it may form two or more plug pockets 194 or said border lines for manuscript classes so that it can respond to two or more manuscript classes and manuscript sizes with one bright film.

[0094]

= Operation gestalt == of == and others

As mentioned above, although the airline printer applied to this invention based on the gestalt of 1 operation has been explained, the above-mentioned gestalt of implementation of invention is for making an understanding of this invention easy, and does not limit this invention. This invention is natural while changing and improving that of the equivalent being contained in this invention, without deviating from the meaning.

[0095]

You may make it a configuration equipped with the image display screen which displays an image for the scanner printer concerning the gestalt of the above-mentioned implementation based on the image data of said RGB. As this image display screen, a liquid crystal display, CRT (Cathode Ray Tube: cathode-ray tube), etc. are mentioned.

[0096]

In the gestalt of the above-mentioned implementation, although the photograph as a reflection copy has mainly been explained to an example, it cannot be overemphasized that it is applicable also to a transparency manuscript. In addition, in reading a former image in this transparency manuscript, it arranges a transparency manuscript unit on a contact glass. This transparency manuscript unit has the light source which illuminates a transparency manuscript from the upper part of a transparency manuscript, and it is constituted so that the linear sensor which has a transparency manuscript caudad may be made to read the transmitted light which penetrates this transparency manuscript below. In addition, this light source is controlled to move synchronizing with migration of the direction of vertical scanning of a linear sensor.

[0097]

In the gestalt of the above-mentioned implementation, although explained taking the case of the thing of a rectangle configuration as a manuscript, constraint may not be in the appearance configuration of a manuscript in any way, for example, the manuscript of various configurations, such as circular, an ellipse form, a triangle, and a polygon, is sufficient.

[0098]

In the gestalt of the above-mentioned implementation, although the configuration using the color ink jet printer as the printer section was shown, it cannot restrict to this and a laser beam printer etc. can be used.

[0099]

About the case where are the size and the same size of a reading field of a manuscript, and a former image and the printing image of actual size are printed in the gestalt of the above-mentioned implementation For example, although especially the case where the printing image of A4 seal size was printed was not explained based on the image data which continued all over the manuscript of A4 seal size, read the former image, and was generated In this case, it cannot be overemphasized that it shifts to said resolution transform processing, without trimming processing and aspect ratio transform processing performing neither.

[0100]

However, in carrying out edge-less printing of this printing image, it originates in mechanical positioning accuracy, such as a feed location gap of a print sheet, carriage and a print sheet carry out a location gap relatively, and there is a possibility that a non-printed part may arise into the part of the edge of this print sheet. For this reason, said printing image may be uniformly expanded covering the direction in every direction rather than a print sheet by the amount of location gaps assumed in order to prevent this. For example, when said amount of location gaps is expected about 3mm, a printing image may be expanded to the magnitude protruded from a print sheet about 3mm to a lengthwise direction and a longitudinal direction.

[0101]

In addition, if this processing to expand is performed, rather than a former image, a printing image will be expanded a little, will be printed, and will not be printed by actual size in strict semantics. Moreover, there is also a possibility that image quality may deteriorate, by performing amplification processing. Then, if it replaces with the above-mentioned processing and the following processings are performed, while printing to actual size about the field of most in a printing image, edge-less printing can be carried out about the edge of a print sheet, without producing a non-printed part.

[0102]

The outside field of said central field is the approach of processing said image data so that it may expand from a former image, maintaining the central field of said former image to a former image and actual size, if this art is explained. For example, while processing image data to the field inside the burster-trimmer-stacker-feature frame bordered inside along the edge of a former image (henceforth an inside field) so that the printing image of actual size may be formed, image data is processed so that the printing image expanded with the predetermined dilation ratio may be formed to the field (henceforth an outside field) of the outside of this burster-trimmer-stacker-feature frame. Here, the whole printing image size of said predetermined dilation ratio is the thing of a dilation ratio which becomes large by said amount of location gaps from said print sheet.

[0103]

And according to this approach, a non-printed part with a possibility of producing it at the edge of a print sheet while being able to print the part of most printing images to a former image and actual size can be lost certainly, it has it, and the thing of a print sheet which all fields are covered mostly and done for edge-less printing of the printing image of actual size becomes possible.

[0104]

In addition, when this processing is carried out, corresponding to this processing, said resolution transform processing is made as follows. First, the resolution of the image data equivalent to said inside field of a former image is changed into print resolution. Here, in this inside field, in order to make a printing image into a former image and actual size, it only measures the resolution and print resolution of this image data. And when the resolution of this image data is lower than print resolution, between the data which perform linear interpolation and adjoin, new data are generated, and in being conversely higher than print resolution, it thins out data at a fixed rate.

[0105]

Next, although the resolution of the image data equivalent to said outside field of a former image is changed into print resolution, this conversion is the dilation ratio which the outside field mentioned above, and it computes the real resolution as resolution of image data at the time of being printed by the print sheet by doing the division of the resolution of image data. When the real resolution of this image data is lower than print resolution, linear interpolation is performed and new data are generated between contiguous data. Conversely, in being higher than print resolution, it changes the resolution of image data into print resolution by thinning out data at a fixed rate.

[0106]

[Effect of the Invention]

According to this invention, the control approach of the airline printer which can attain

shortening of the image-processing time amount for processing the image data read in the image reading section, and generating print data, and an airline printer is realized.

[Brief Description of the Drawings]

[Drawing 1] It is the outline perspective view of the scanner printer which is a printer of scanner one apparatus.

[Drawing 2] It is the conceptual diagram showing the whole control-section configuration of a scanner printer.

[Drawing 3] It is the enlarged drawing of the control-panel section.

[Drawing 4] It is the plan of the contact glass for explaining a reading field.

[Drawing 5] It is the plan of the contact glass for explaining a reading field.

[Drawing 6] It is the enlarged drawing of the control-panel section.

[Drawing 7] It is the schematic diagram showing an example of the main configurations of the scanner section.

[Drawing 8] It is XY coordinate table showing XY coordinate of a reading field.

[Drawing 9] It is the Y coordinate range table showing the range of the Y coordinate of a reading field.

[Drawing 10] It is an explanatory view to show the need for the trimming of image data.

[Drawing 11] It is the explanatory view showing an example in the case of performing aspect ratio modification processing.

[Drawing 12] It is the outline perspective view showing an example of the main configurations of the printer section.

[Drawing 13] It is a manuscript positioning means for E seal photographs.

[Description of Notations]

10 Scanner Printer

20 Contact Glass, Installation Side

22a, 22b, 24a, and 24b Reading field

26a, 26b, 26c, 26d, 26e, and 26f Reading field

30 Scanner Section

31 Carriage Motor

32 Carriage

33 Guide Rail

34 Light Source, Fluorescent Lamp

36 Linear Sensor

38a Mirror

38b Lens

40 Control-Panel Section

42 Liquid Crystal Panel, Input Screen

44 Manual Operation Button

44a Vertical carbon button

44b Decision carbon button

44c Start button

44d Stop button

50 Control Section

52 Control Control Section

54 CPU

56 RAM

58 ROM

60 Scanner Control Section

62 System Controller

64 Vertical-Scanning Actuation Circuit

66 Light Source Control Circuit

68 Masking Circuit

68a XY coordinate table

68b Y coordinate range table

120 Printer Section, Color Ink Jet Printer  
122 Form Stacker  
124 Paper Conveyance Roller  
126 Platen  
128 Carriage  
130 Carriage Motor  
131 Paper Conveyance Motor  
132 Towage Belt  
134 Guide Rail  
136 Print Head  
140 Printer Control Section  
150 Buffer Memory  
152 Image Buffer  
154 System Controller  
156 Main Memory  
158 EEPROM  
161 Horizontal-Scanning Actuation Circuit  
162 Vertical-Scanning Actuation Circuit  
163 Head Actuation Circuit  
190 Manuscript Positioning Means  
192 Bright Film  
194 Plug Pocket  
196 Stop Member  
200 Strip Negative Film  
200a, 200b, 200c, 200d, 200e, and 200f Real manuscript field

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[Translation done.]

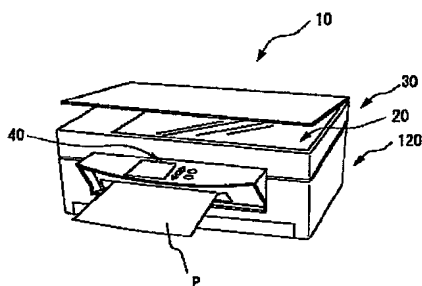
\* NOTICES \*

JPO and INPIT are not responsible for any damages caused by the use of this translation.

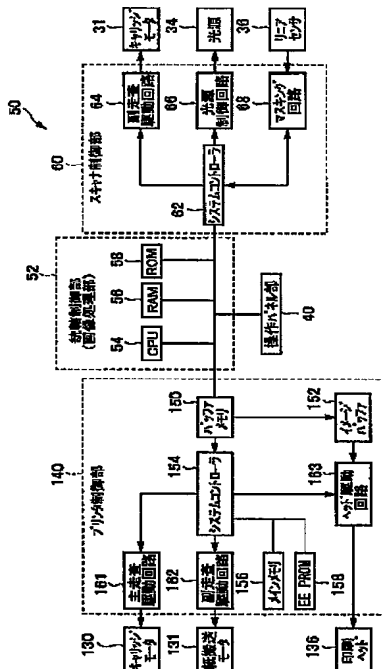
- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

## DRAWINGS

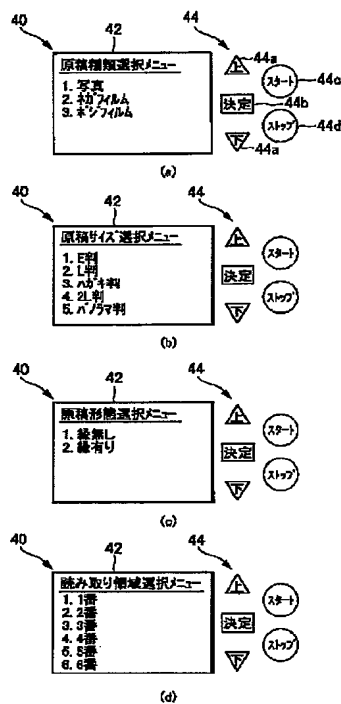
[Drawing 1]



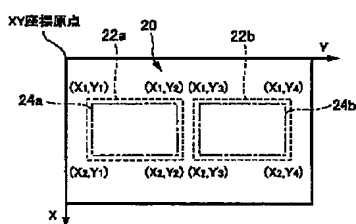
[Drawing 2]



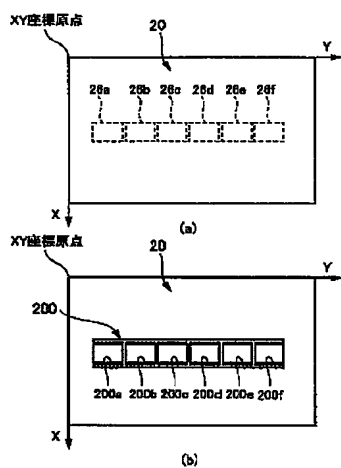
[Drawing 3]



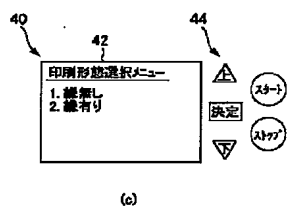
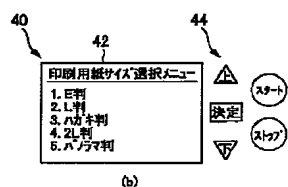
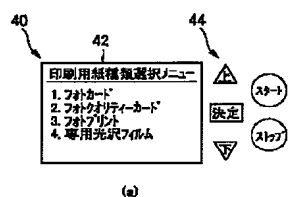
[Drawing 4]



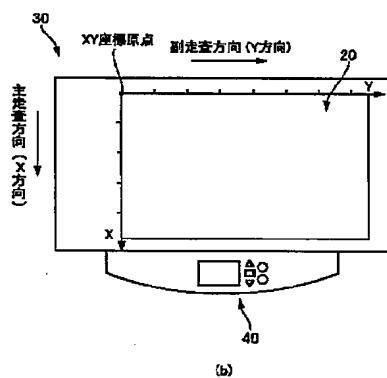
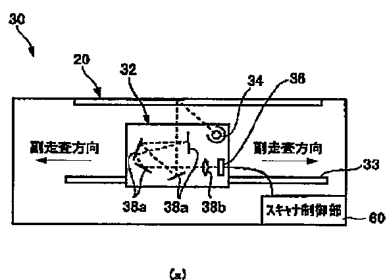
[Drawing 5]



[Drawing 6]



[Drawing 7]



[Drawing 8]



88a

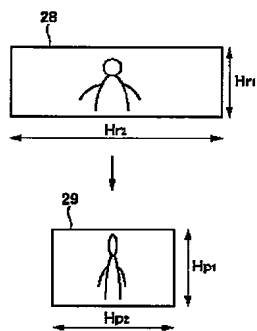
原稿種類情報	Y座標	X座標の範囲 (読み取り領域)
写真、E判、縮刷し、1番	Y1	X1 ~ X2
	⋮	⋮
	Y2	X1 ~ X2
写真、E判、縮刷し、2番	Y3	X1 ~ X2
	⋮	⋮
	Y4	Y1 ~ X2
⋮	⋮	⋮
	Y21	X21 ~ X22
	⋮	⋮
⋮	Y22	X21 ~ X22
	⋮	⋮
	⋮	⋮

[Drawing 9]

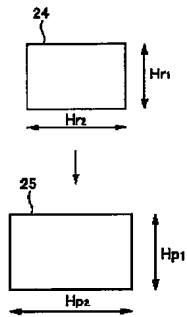
82a

原稿種類情報	Y座標の範囲
写真、E判、縮刷し、1番	Y1 ~ Y2
写真、E判、縮刷し、2番	Y3 ~ Y4
⋮	⋮
⋮	Y21 ~ Y22
⋮	⋮

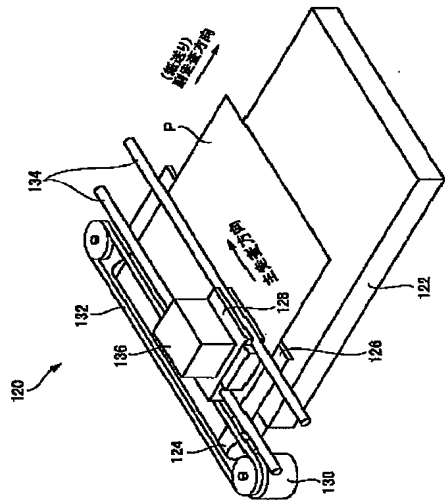
[Drawing 10]



[Drawing 11]



[Drawing 12]



[Drawing 13]

